

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Patent Application for:

Mohammad Faisal

Serial No.: 09/742,809

Filing Date: 12/19/2000

For: AUTOMATED EXTENSION FOR
GENERATION OF CROSS
REFERENCES IN A KNOWLEDGE
BASE

Examiner: Abel Jalil, Neveen

Group Art Unit: 2175

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SUPPLEMENTAL APPEAL BRIEF

COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

Applicant hereby requests reinstatement of this Appeal. This Supplemental Appeal Brief, along with the accompanying Appendices, is filed in triplicate and is accompanied by the required fee. Please charge any additional fees or credit any overpayment to Deposit Account No. 501128.

I. REAL PARTY IN INTEREST

The real party in interest to this Appeal is Oracle International Corporation, a California Corporation, having its principal place of business in Redwood Shores,

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Atty Docket No.: ORCL.P0073
PTO Serial No.: 09/742,809

California.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences known to appellant, the appellant's legal representative, or assignees thereof.

III. STATUS OF CLAIMS

Claims 1-15 are pending in the present application. The examiner has rejected claims 1-15. Applicant hereby appeals the rejection of claims 1-15.

IV. STATUS OF AMENDMENTS

An Amendment was filed subsequent to final rejection. It was considered but found unpersuasive by the examiner. An Advisory Action to that effect was mailed June 26, 2003.

V. SUMMARY OF INVENTION

Claims 1-5 are directed towards a method for generating cross-references among categories in a knowledge base. *Specification, page 3, lines 17-18.* The method includes a number of steps. First, a plurality of themes are extracted from a plurality of documents. *Specification, page 3, line 18.* The themes identify subject matter contained in corresponding documents. *Specification, page 3, lines 18-19.* A theme strength, which generally reflects the amount of subject matter

directed to one theme contained in a document relative to other themes, is generated for each theme. *Specification, page 3, lines 19-24.* Theme strengths among pairs of themes are expressed as scores, and the most related themes—as indicated by scores—are selected. *Specification, page 3, line 24.* Themes of selected pairs are mapped to corresponding knowledge base categories, and the theme maps are used to select category pairs from the knowledge base. *Specification, page 4, lines 1-2.* Finally, a cross reference between categories of category pairs in the knowledge base is generated so as to identify an association between the category pairs. *Specification, page 4, lines 3-4.* (Also see **Figure 2**, which illustrated one embodiment for knowledge base processing, **Figure 4**, which illustrates an embodiment for calculating theme matrix scores, and **Figure 5**, which illustrates an example portion of a knowledge base including cross references and links among categories and terms.)

Claims 6-10 are directed towards a system. The system includes a search and retrieval module that receives user queries as input and generates query responses with feedback as output. *Specification, page 6, lines 13-16; Figure 1.* It further includes a knowledge base and a knowledge base processing system. *Figure 1.* The knowledge base is coupled to the search and retrieval module and is used for storing relationships among terminology. *Specification, page 5, lines 6-10; Figure 1.* The knowledge base processing system is coupled to the knowledge base. *Figure 1.* Processing steps described in relation to claims 1-5 above are performed by the knowledge base processing system. *Specification, page 6, lines 4-12.*

Claims 11-15 are directed towards a computer readable medium that includes a plurality of instructions. When executed, the instructions cause the computer to perform steps as described in reference to claims 1-5 above. *Specification, page 61, lines 15-16; Figure 7.*

VI. ISSUES

1. Whether the subject claims are unpatentable under 35 U.S.C. 102 over Wical (U.S. Pat. No. 5,930,788)?

VII. GROUPING OF THE CLAIMS

Applicants contend that all of the pending claims (1-15) stand or fall together. Accordingly, applicants are not grouping the claims on appeal.

VIII. ARGUMENT

The examiner reopened prosecution of the pending patent application. Under the new ground of rejection, the Examiner rejected claims 1-15 under 35 USC 102 as being unpatentable over US Patent 5,930,788, issued to Wical (hereafter referred to as “the ‘788 Patent”).

A. To Anticipate a Claim, a Reference Must Teach Every Element of the Claim.

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). “The identical

invention must be shown in as complete detail as is contained in the ... claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). “The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required.” *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990). *MPEP* 2131.

B. The Claimed Invention

Claim 1 recites:

1. *A method for generating cross-references among categories in a knowledge base, said method comprising the steps of:*
 - extracting, from a plurality of documents, a plurality of themes, wherein a theme identifies subject matter contained in a corresponding document;*
 - generating a theme strength for said themes, said theme strength reflects the amount of subject matter contained in a document for a corresponding theme relative to other themes in said document;*
 - generating a plurality of scores, from said theme strengths, to identify a relative theme pair strength for at least one pair of said themes extracted from said documents;*
 - selecting theme pairs based on said scores;*
 - selecting category pairs in said knowledge base by mapping said themes of said theme pairs selected to corresponding categories of said knowledge base; and*

generating a cross reference in said knowledge base between categories of said category pairs, wherein said cross reference identifies an association between said category pairs.

Claim 1 sets forth elements to generate cross-references among categories in a knowledge base. For example, one element includes “generating a plurality of scores ... to identify a relative theme pair strength for at least one pair of themes.”

C. The ‘788 Patent Does Not Disclose the Claimed Invention of The Subject Application.

In rejecting claim 1 over the ‘788 Patent, the Examiner points to various, separate claim terms in the reference and improperly combined them to arrive at the elements of the claim.

1. The ‘788 Patent Is Not Related To Generating Cross References Between Category Pairs.

Claim 1 recites a method for generating cross-references among categories in a knowledge base. The ‘788 Patent only discloses using category pairs, from a category cross reference database, in the disambiguation process. The category cross reference database contains a list of category pairs that validate a classification of a term or theme. (Col. 8, lines 34 - 36). The Examiner cites the Abstract of the ‘788 Patent, which reads, in part:

The disambiguation processing also utilizes a category cross reference database, which comprises a list of cross reference database pairs, to disambiguate categories assigned to themes by pairing a category classified by a theme and other categories classified for other

themes in the document and by comparing these category pairs with category cross reference pairs. (Abstract).

Thus, the Abstract of the '788 Patent discloses using category cross reference pairs in a disambiguation process. In contrast, the claims of the present application set forth elements for generating cross-references among categories of a knowledge base. As such, Applicant respectfully contends that the '788 Patent does not anticipate the claimed invention because the '788 Patent does not even relate to generating category cross reference pairs.

2. The '788 Patent Does Not Disclose Generating Relative Theme Pair Strengths For A Pair Of Themes.

Claim 1 sets forth the element:

generating a plurality of scores, from said theme strengths, to identify a relative theme pair strength for at least one pair of said themes extracted from said documents;

As claimed, the process identifies a score for "at least one pair of themes."

The Examiner asserts that this element is taught in Col. 9, lines 14 – 48 of the '788 Patent. In Col. 9, lines 14 – 48, the '788 Patent teaches using theme weights in the disambiguation process. Particularly, the disambiguation process compares the theme weights of two terms to select a category. Thus, the theme weight disclosed in the '788 Patent only ascribes a weight to a single

theme term. In contrast, the claimed invention assigns a score to a *pair* of themes. As claimed, the “scores” identify a “relative theme pair strength”, and therefore the ‘788 Patent’s teaching of ascribing a weight to a single theme term does not anticipate.

The Examiner also asserts that this element is taught in the language of claim 12. Claim 12 sets forth a process, that includes the elements of generating a total theme strength for a category by summing all theme strengths for all themes classified in the category and generating a total theme strength for a parent category of said category by summing all theme strengths for all themes classified under the parent category. (Col. 20, Claim 12). Claim 12 does not teach generating a score that measures the relative strength between two themes (*e.g.*, relative theme pair strength), but teaches summing the themes strengths for all themes classified in a category (*i.e.*, category and parent category).

Applicant respectfully contends that the ‘788 Patent does not anticipate the claimed invention, and requests a withdraw of the rejection under 35 U.S.C. 102.

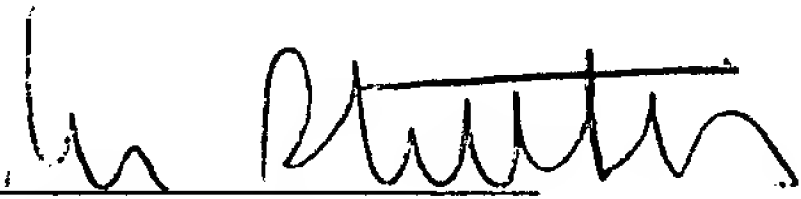
D. The Other Subject Claims Contain Similar Elements to Those of Claim 1

Claims 2-5 depend from claim 1, and the other independent claims (*i.e.*, 6 and 11) contain

similar elements to those of claim 1. Applicants contend, therefore, that the same arguments presented above for claim 1 apply to the rest of the claims at issue.

IX. CONCLUSION.

In view of the foregoing, applicants respectfully submit that the claims are patentable. Applicants hereby request that the Board overturn the examiner's finding that the claims are unpatentable under 35 U.S.C. §102.

BY: 

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APPENDIX

The following claims are the subject of this Appeal.

1. A method for generating cross-references among categories in a knowledge base, said method comprising the steps of:
 - extracting, from a plurality of documents, a plurality of themes, wherein a theme identifies subject matter contained in a corresponding document;
 - generating a theme strength for said themes, said theme strength reflects the amount of subject matter contained in a document for a corresponding theme relative to other themes in said document;
 - generating a plurality of scores, from said theme strengths, to identify a relative theme pair strength for at least one pair of said themes extracted from said documents;
 - selecting theme pairs based on said scores;
 - selecting category pairs in said knowledge base by mapping said themes of said theme pairs selected to corresponding categories of said knowledge base; and
 - generating a cross reference in said knowledge base between categories of said category pairs, wherein said cross reference identifies an association between said category pairs.

2. The method as set forth in claim 1, wherein the step of generating a plurality of scores comprises the steps of:

generating a matrix comprising a plurality of columns and rows to form a plurality of entries, wherein each column represents one of said themes and each row represents one of said themes; and

generating a score for at least a subset of said entries of said matrix, such that a score reflects a relative theme pair strength between two themes represented by said entry for said documents.

3. The method as set forth in claim 2, wherein the step of generating a score for at least a subset of said entries of said matrix comprises the steps of:

calculating a plurality of products for an entry by multiplying theme strengths corresponding to two themes represented by said entry for each document that includes said two themes represented by said entry; and

summing said products for an entry to generate said score.

4. The method as set forth in claim 1, wherein the step of selecting category pairs in said knowledge base comprises the steps of:

determining whether only one of said themes exist as a category in said knowledge base;

if so,

generating a new category in said knowledge base for said theme;

generating a new cross-reference relationship between said new category and a category for which one of said themes exist; and

generating a new score for said new cross-reference relationship.

5. The method as set forth in claim 1, wherein the step of selecting category pairs in said knowledge base comprises the steps of:

determining whether both of said themes exist as categories in said knowledge base;

if so,

determining whether a cross reference relationship exists from said category pair;

if not,

generating a new cross-reference relationship between said category pair;

generating a new score for said new cross-reference relationship;

and

if so,

generating a new score for said existing cross-reference relationship.

6. A system comprising:

search and retrieval module for receiving a user query and for generating a query response

including query feedback;

a knowledge base, coupled to said search and retrieval module, for storing relationships among terminology for use as query feedback;

a knowledge base processing system, coupled to said knowledge base for processing a plurality of documents and automatically extending said relationships among said terminology in said knowledge base, said knowledge base processing system for extracting, from said documents, a plurality of themes, wherein a theme identifies subject matter contained in a corresponding document, for generating a theme strength for said themes, said theme strength reflects the amount of subject matter contained in a document for a corresponding theme relative to other themes in said document, for generating a plurality of scores, from said theme strengths, to identify a relative theme pair strength for at least one pair of said themes extracted from said documents, for selecting theme pairs based on said scores, for selecting category pairs in said knowledge base by mapping said themes of said theme pairs selected to corresponding categories of said knowledge base, and for generating a cross reference in said knowledge base between categories of said category pairs, wherein said cross reference identifies an association between said category pairs.

7. The system as set forth in claim 6, wherein the knowledge base processing system further for generating a matrix comprising a plurality of columns and rows to form a plurality of

entries, wherein each column represents one of said themes and each row represents one of said themes and for generating a score for at least a subset of said entries of said matrix, such that a score reflects a relative theme pair strength between two themes represented by said entry for said documents.

8. The system as set forth in claim 7, wherein the knowledge base processing system further for calculating a plurality of products for an entry by multiplying theme strengths corresponding to two themes represented by said entry for each document that includes said two themes represented by said entry, and for summing said products for an entry to generate said score.

9. The system as set forth in claim 7, wherein the knowledge base processing system further for determining whether only one of said themes exist as a category in said knowledge base, if so, for generating a new category in said knowledge base for said theme, for generating a new cross-reference relationship between said new category and a category for which one of said themes exist, and for generating a new score for said new cross-reference relationship.

10. The system as set forth in claim 7, wherein the knowledge base processing system further for determining whether both of said themes exist as categories in said knowledge base; if

so, for determining whether a cross reference relationship exists from said category pair; if not, for generating a new cross-reference relationship between said category pair, for generating a new score for said new cross-reference relationship; and if so, for generating a new score for said existing cross-reference relationship.

11. A computer readable medium comprising a plurality of instructions, which when executed, causes the computer to perform the steps of:

extracting, from a plurality of documents, a plurality of themes, wherein a theme identifies subject matter contained in a corresponding document;

generating a theme strength for said themes, said theme strength reflects the amount of subject matter contained in a document for a corresponding theme relative to other themes in said document;

generating a plurality of scores, from said theme strengths, to identify a relative theme pair strength for at least one pair of said themes extracted from said documents;

selecting theme pairs based on said scores;

selecting category pairs in said knowledge base by mapping said themes of said theme pairs selected to corresponding categories of said knowledge base; and

generating a cross reference in said knowledge base between categories of said category pairs, wherein said cross reference identifies an association between said category pairs.

12. The computer readable medium as set forth in claim 11, wherein the step of generating a plurality of scores comprises the steps of:

generating a matrix comprising a plurality of columns and rows to form a plurality of entries, wherein each column represents one of said themes and each row represents one of said themes; and

generating a score for at least a subset of said entries of said matrix, such that a score reflects a relative theme pair strength between two themes represented by said entry for said documents.

13. The computer readable medium as set forth in claim 12, wherein the step of generating a score for at least a subset of said entries of said matrix comprises the steps of:

calculating a plurality of products for an entry by multiplying theme strengths corresponding to two themes represented by said entry for each document that includes said two themes represented by such entry; and

summing said products for an entry to generate said score.

14. The computer readable medium as set forth in claim 11, wherein the step of selecting category pairs in said knowledge base comprises the steps of:

determining whether only one of said themes exist as a category in said knowledge base;

if so,

generating a new category in said knowledge base for said theme;

generating a new cross-reference relationship between said new category and a category for which one of said themes exist; and

generating a new score for said new cross-reference relationship.

15. The computer readable medium as set forth in claim 11, wherein the step of selecting category pairs in said knowledge base comprises the steps of:

determining whether both of said themes exist as categories of said knowledge base;

if so,

determining whether a cross reference relationship exists from said category pair;

if not,

generating a new cross-reference relationship between said category pair;

generating a new score for said new cross-reference relationship; and

if so,

generating a new score for said existing cross-reference relationship.

if not,

generating a new cross-reference relationship between said category pair;

generating a new score for said new cross-reference relationship; and

if so,

generating a new score for said existing cross-reference

relationship.